triadis

ALTAIR

Altair Maintenance

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Preface

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0.01	01/03/2008	draft	D.Wettstein	Draft
1.0	17/06/2008	released	D.Wettstein	First Release
1.01	25/08/2008	released	D.Wettstein	Minor edits
1.1	08/12/2008	released	S.Gisiger	Minor edits
1.2	04/06/2009	released	S.Gisiger	Major rework
1.3	18/06/2009	released	D.Wettstein	Layout/translation update

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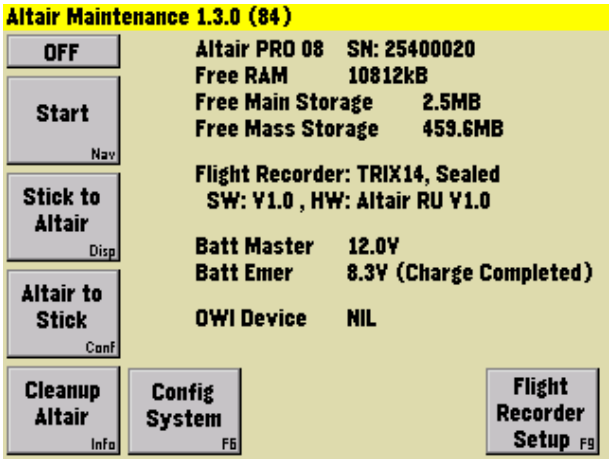
1 Running Altair Maintenance

To run Altair Maintenance, use the following procedure:

- Turn off Altair.
- Insert the USB memory stick into the slot on the instrument face.
- Turn on Altair.

→ Altair Maintenance will now appear at startup.



On the main page, the following informations are listed:

- Altair version (Standard, Pro), serial number
- Free memory (flash file system) in MB
- If an Altair Flight Recorder Unit is connected:
  - Flight recorder type, serial number, status sealed (usual case) / not sealed
  - Software version, hardware version
- Input battery voltage (main and emergency supply)
- OWI Devices: connected OneWire interface knots for external inputs, e.g. control stick switches.

The following buttons are available on the left and lower border:

• **OFF** (ESC) Turn off Altair.

- **Start** (NAV) Launch XCSoar (glide computer application). Greyed out if xcsoar.exe is not found on the file system.
- **Stick to Altair** (DISP) Transfer data from the USB memory stick to Altair. Greyed out if the folder `\ToAltair` is not found on the Memory Stick.
- **Altair to Stick** (CONF) Transfer data from Altair to the USB memory stick. Greyed out if the folder `\FromAltair` is not found on the Memory Stick.
- **Cleanup Altair** (INFO, F5) Erase data from Altair (described later in this section).
- **Config System** (F6) Special maintenance options, e.g. COM port monitor etc. (described in section 2).
- **Flight Recorder Setup** (F9) Flight Recorder Setup (described later in this section). Only visible if Altair Flight Recorder Unit is connected.

1.1 Transferring user files

The system can be customized or extended by adding or replacing user files.

> ***It is the pilot's responsibility to ensure that the used databases are up to date and accurate, particularly the airspace files.***

User files are:

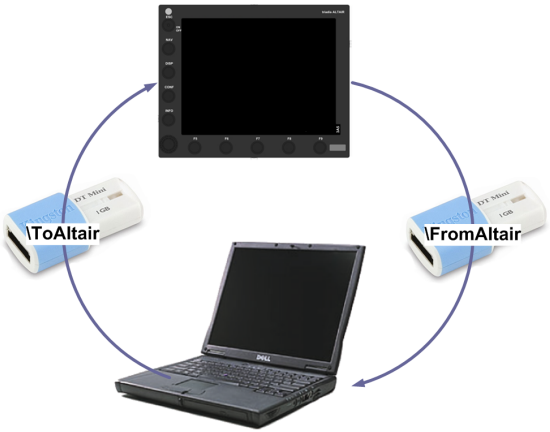
- Waypoint files
- Airfield files
- Airspace files
- Task files
- Map files (containing Terrain and Topology)
- Configuration files
- Checklist file

User files may also be generated by the navigation application (XCSoar), e.g.:

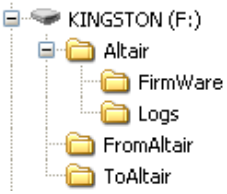
- System state files
- System log files
- System configuration files
- Flight records (from the XCSoar software flight recorder)
- User position markers

It is advisable to regularly visit the triadis engineering GmbH website (`http://www.triadis.ch`) and the XCSoar website (`http://xcsoar.sourceforge.net`) to keep abreast of software and database updates.

1.1.1 Preparing the USB memory stick



Make sure the USB memory stick contains the following folders (create them if necessary):



Do not use FAT32 formatted USB memory sticks!

Do not add subfolders to \FromAltair and \ToAltair!

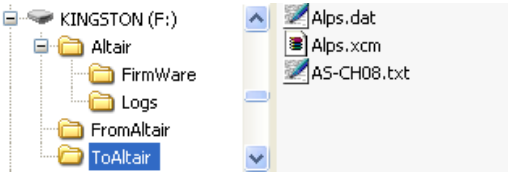
In order to avoid problems, it is strongly recommended to use this USB memory stick only for data transfer to and from Altair.

1.1.2 Putting files to Altair

To copy user files to Altair, follow these steps:

Copy user data from your PC to the USB memory stick

- Plug the USB memory stick into a USB host slot on your PC or laptop.
- Copy your user files to the USB memory sticks `\ToAltair` folder.



- Safely remove the USB memory stick

Copy user data from the USB memory stick to Altair

- Plug the USB memory stick into the USB slot of Altair.
- Turn on Altair.
- When the maintenance tool is visible, push the [Stick to Altair] (DISP) button.

Reconfigure navigation application (XCSoar)

- Start the navigation application and select the new data files in the system setup dialog.

1.1.3 Getting files from Altair

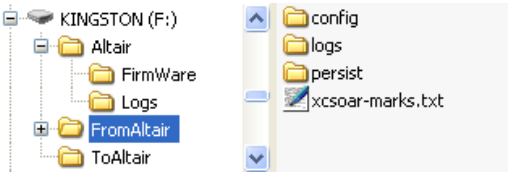
To copy user files from Altair, follow these steps.

Copy user data from Altair to USB memory stick

- Plug the USB memory stick into the USB slot of Altair.
- Turn on Altair.
- When the maintenance tool is visible, push the [Altair to Stick] (CONF) button.
- Remove the USB memory stick

Copy user data to the PC

- Plug the USB memory stick into a USB host slot on your PC or laptop.
- Copy the files from the `\FromAltair` folder to your local harddisk.



1.2 Updating/installing system files

Altair and Vega contain several computers and microcontrollers. These CPUs execute software like applications, drivers, tools and firmware called system files. This software needs maintenance from time to time.

A system file is everything that is not a user file and that is required to run the Altair, Vega or Altair Flight Recorder Unit properly. E.g.:

- Navigation application (XCSoar)
- Altair Maintenance
- Hardware drivers
- Vega firmware

With Altair Maintenance, it is possible to do the maintenance for all triadis devices connected to Altair from a single firmware database.

> *Note that for safety reasons:*
>
> - *System files cannot be installed using the ToAltair way!*
> - *System files cannot be overwritten or deleted accidentally!*

1.2.1 Installing a new firmware database

To install a new or update the current firmware database, follow these steps:

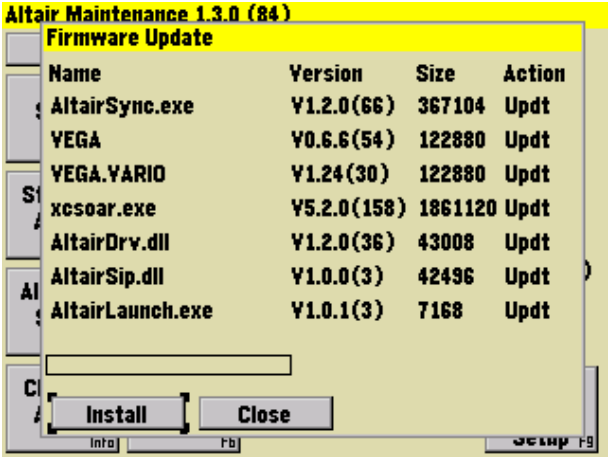
Installing the firmware database onto the USB memory stick

- Plug the USB memory stick into a USB host slot on your PC or laptop.
- Download the latest firmware database setup from the triadis website and store it on the local drive of your PC.
- Run the firmware database setup and select the drive letter of your USB memory stick.
- After the setup is finished, remove the USB memory stick safely.

> *The firmware database Setup copies the firmware database to \Altair\Firmware.*

Updating Altair and Vega

- Plug the USB memory stick into the USB slot of Altair.
- Turn on Altair.
- When the maintenance tool appears, it shows a list of all system files that need to be updated.



- Push [Install] (ENTER) for Altair Maintenance to automatically update your system.

1.3 Downloading records from the Altair Flight Recorder Unit

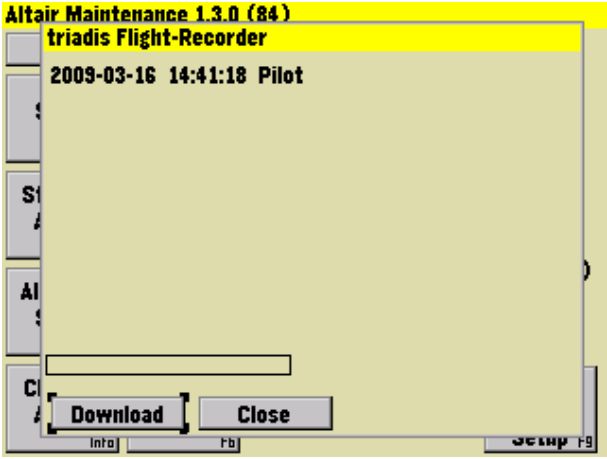
Only available if an Altair Flight Recorder Unit is connected!

The Altair Flight Recorder Unit (RU) is an IGC approved standalone unit that records and stores flights.

Altair Maintenance is able to read out the flight records and store them on the USB memory stick.

Reading out records and copying them to USB memory stick

- Plug the USB memory stick into the USB slot of Altair.
- Turn on Altair.
- Alternatively it is possible to plug in the stick before the navigation application (XCSoar) shuts down.
- When Altair Maintenance appears and unread records are found on the recorder, a list with all records is displayed.



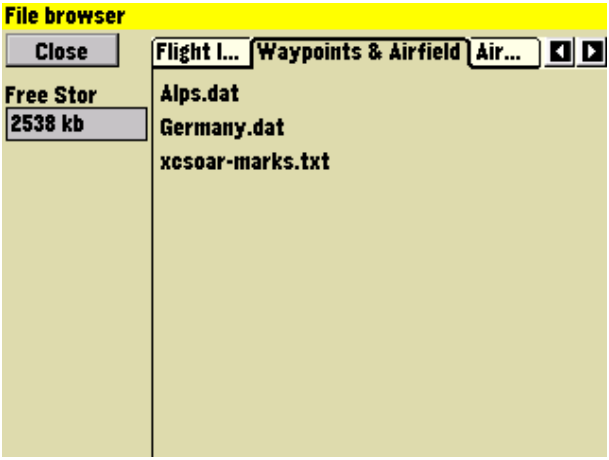
- Push [Download] (ENTER) for Altair Maintenance to automatically read out all unread records from the recorder and store them on the USB memory stick.
- Remove the USB memory stick safely

Note that:

- *Altair Maintenance only reads out records that are not already on the stick.*
- *The records are stored into \Altair\Logs using the long IGC file naming conventions.*
- *After landing, wait at least 5 minutes before trying to read out new records.*

1.4 Removing unused files

The file browser dialog shows a list of files that may be candidates for deletion. The dialog also shows the current free storage memory size.



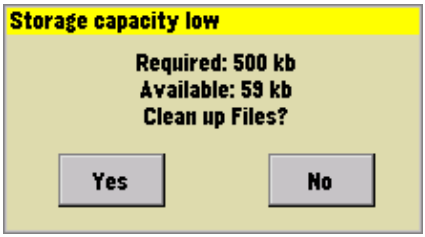
There is a filter to allow the selection of different file types, including:

- Software logger flight logs (.igc)
- Data logs (.log)
- Tasks (.xct)
- Profiles (.prf)
- Data files (.dat)
- Text files (.txt)
- Map files (.xcm)
- All (*)

Important system files used by Altair and the navigation application (XCSoar) are hidden and can therefore not be deleted accidentally.

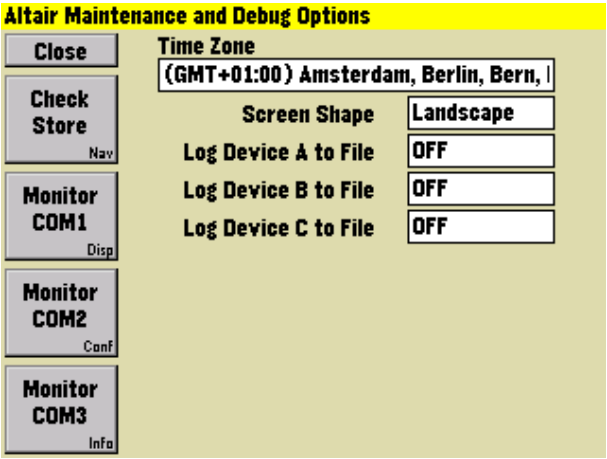
Press the [Close] button when finished with file browsing/deleting. If the file browser was initiated in response to the system determining insufficient free storage to complete a file transfer, and there is still insufficient free storage, then the user will be asked whether to return to the file browser or to cancel the file transfer.

If on power-on Altair detects that the storage memory is nearly full, the user is asked if he/she wants to clean up old files in order to free up space on the device.



When file uploads are being performed and if the system detects that there is insufficient storage to complete the transfer, then this too will cause the system to enter the file cleanup dialog.

2 System and debug options

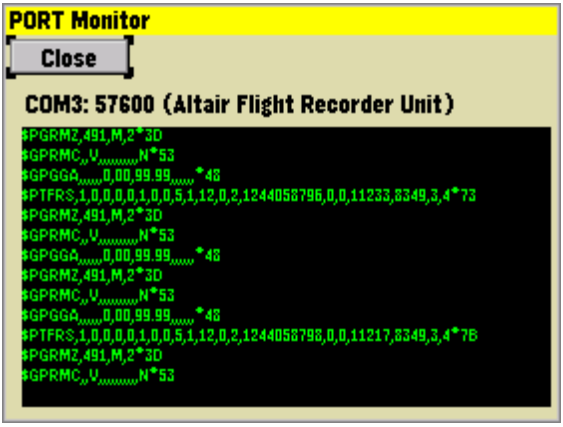


This dialog can be opened via Altair Maintenance.

Available buttons:

• **Check Store** (NAV) Checks the filesystem.

• **Monitor COM1** (DISP) Opens the COM port monitor on COM1. The monitor shows all the connected devices and their baud rate.



• **Monitor COM2** (CONF) Opens the COM port monitor on COM2.

• **Monitor COM3** (INFO) Opens the COM port monitor on COM3.

Input fields:

- **Time Zone** The time zone, currently not used.
- **Screen Shape** Screen shape used for the glide computer application (Portrait or Landscape).
- **Log Device A to File** All data which is sent to XCSoar by the device (A) is written into a file by XCSoar. It is only possible to enable this function for the current session. After shutting down Altair, this value is automatically set back to 'OFF'.
- **Log Device B to File** As above, but for device B, if connected.
- **Log Device C to File** As above, but for device C, if connected.

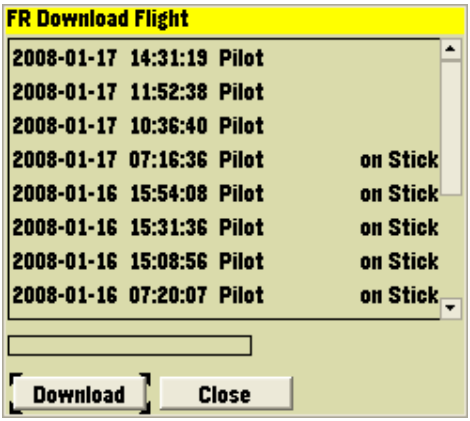
3 Flight recorder setup

Only available if an Altair Flight Recorder Unit is connected!

3.1 General buttons

• **Close** (ESC) Close the dialog.

• **Read Flight Loggs** (CONF) Download all flight records to the USB memory stick.

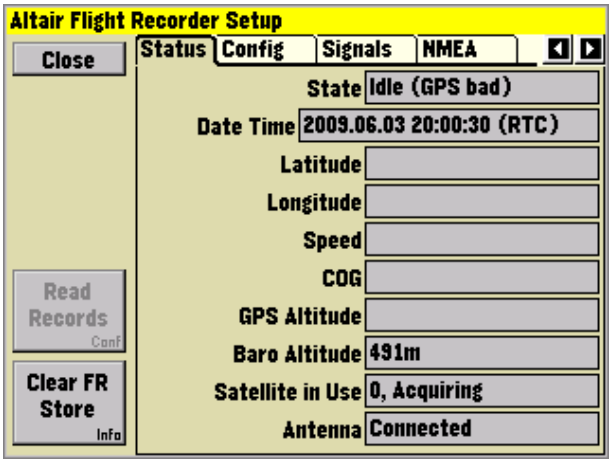


• **Clear FR store** (INFO) Clean up the flight recorder memory. Does not change the configuration.

All records on the Altair Flight Recorder Unit are deleted!

The following paragraphs describe the pages (tabs) of the flight recorder setup dialog:

3.2 Status



Status of the flight recorder (GPS).

Input fields:

- **Date** / **Time** Date / time of the Flight Recorder. RTC (real time clock) time if no GPS connected or as long as the GPS system has not transmitted the difference second between GPS and UTC time (usually after 10-15 mins, GPS reception required). Then it is UTC time.

- **Status** RU state (Idle, Recording, GPS bad or OK)

- **Date Time** Recoder date and time (RTC or UTC)

- **Latitude** Latitude

- **Longitude** Longitude

- **Speed** GPS ground speed

- **COG** Course over ground

- **GPS Altitude** GPS altitude (meters above sea level)

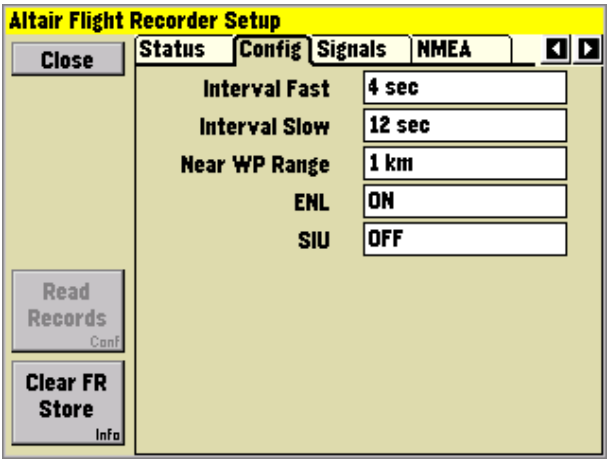
- **Baro Altitude** Barometer altitude (QNH), based on standard atmosphere

- **Satellites used** Number of satellites used for navigation

- **Antenna** Status of the GPS-Antenna (Connected, Not Connected, Short Curcuit)

3.3 Config

This properties may also be changed by the navigation application (XCSoar).



Input fields:

- **Interval Fast** Recorder interval max (with high flight dynamics, e.g. circling, acceleration; typically 2-4 secs)

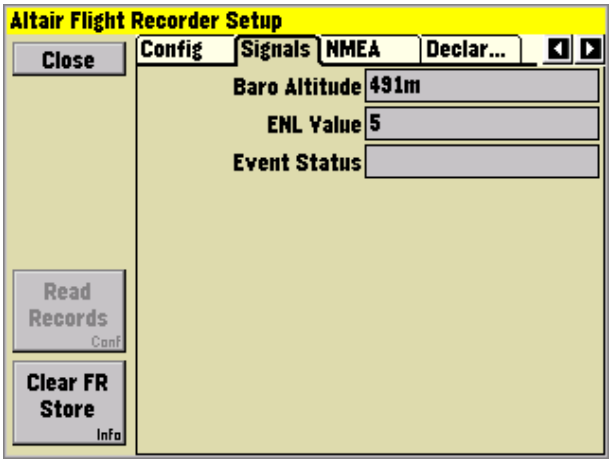
- **Interval Slow** Recorder interval min (with low flight dynamics, e.g. cruise; typically 8-12 secs)

- **Near WP Range** Range around waypoint, where the recorder interval is fast.

- **ENL** Enable/disable ENL-logging (engine noise level) data (default: on).

- **SIU** Enable/disable SIU-logging (satellites in use) data (default: off).

3.4 Signals

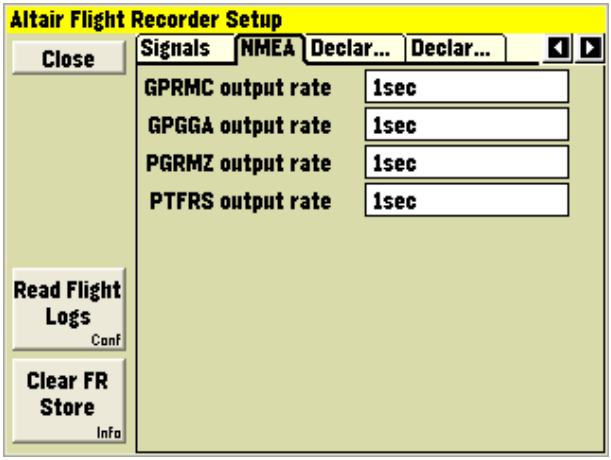


Info fields:

- **Baro Altitude** Current barometer altitude
- **ENL Value** Current ENL value
- **Event Status** Event signal status (external switch)

3.5 NMEA

This properties may be overwritten by the navigation application (XCSoar)!



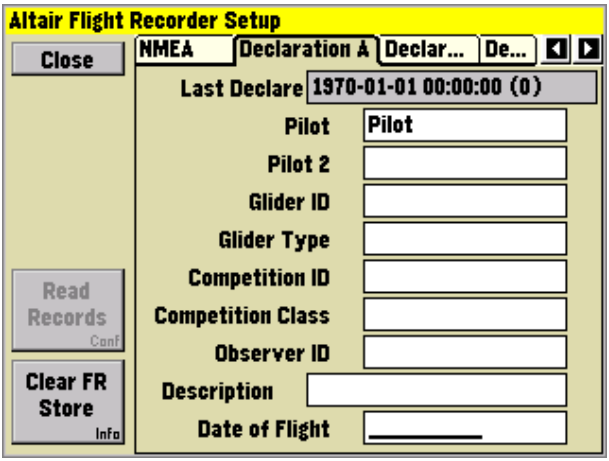
NMEA sentences that can be enabled (usually automatically handled by the system):

- **GPRMC output rate** Standard NMEA sentence; OFF or interval 1 second
- **GPGGA output rate** Standard NMEA sentence; OFF or interval 1 second
- **PGRMZ output rate** Interval barometer altitude; OFF or interval 1 second
- **PTFRS output rate** Interval status flight recorder (triadis); OFF or interval 1 second

3.6 Declaration A

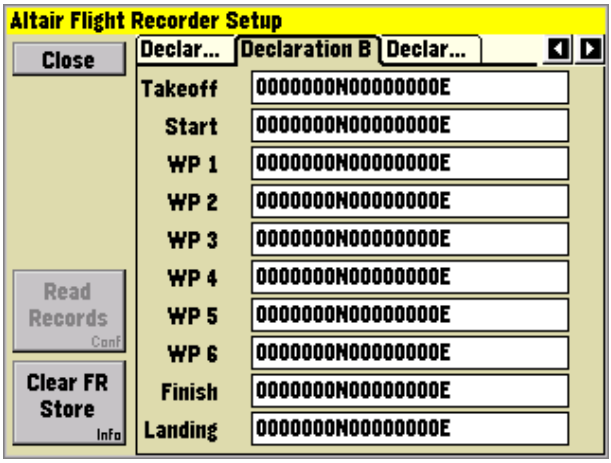
> ***This properties will be overwritten by the navigation application (XCSoar) during task declaration!***

Specified IGC declaration fields. With exception of the field 'Date of Flight', the values of these fields are written into the IGC file without any modifications. If a value of a data field changes, the modifications are automatically saved when closing the window.



3.7 Declaration B/C

> ***This properties will be overwritten by the navigation application (XCSoar) during task declaration!***



Specification of takeoff, landing, start and landing point as well as five waypoints. There are five more waypoints on page C.

If changes are made, the declaration is updated when the flight recorder setup is closed. The following dialog comes up: